

2003P09732WO

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## Patent claims

1. An eddy current probe (1) for electrical measurement methods,

which has a substrate (16) with a resting surface (37), the resting surface (37) comes to lie on a test piece (10), two electrical components (47) being mounted on the substrate (16),

the probe (1) with the substrate (16) being so flexible that the probe (1) with the substrate (16) can adapt itself to different radii of curvature of the test piece (10),

characterized

in that the probe (1) has a backing (22) with ferritic and/or magnetic material,

which at least partly covers at least one electrical component (4, 7), and

which (22) is formed elastically, especially permanently elastically,

in that the probe (1) comprises an exciter winding (4) as the first electrical component and a signal coil (7) as the second electrical component,

in that the exciter winding (4) encloses the coil sections of the signal coil (7) and

in that the signal coil (7) and the exciter coil (4) lie in one plane or on one and the same surface of the substrate (16).

2. The eddy current probe as claimed in claim 1,  
characterized in that

the substrate (16) is a flexible film.

3. The eddy current probe as claimed in claim 2,  
characterized in that

the film (16) is formed from polyimide.

4. The eddy current probe as claimed in claim 1,  
characterized in that

the backing (22) is formed by an elastic, especially  
permanently elastic, sheet of a ferritic material.

5. The eddy current probe as claimed in claim 1,  
characterized in that

the backing (22) is formed by an elastic, especially  
permanently elastic, casting compound (34), especially  
filled with ferrite particles.

6. The eddy current probe as claimed in claim 1,  
characterized in that

the probe (1) has as an electrical component at least one  
coil (4, 7), which is arranged on the substrate (16) in a  
planar manner.

7. The eddy current probe as claimed in claim 1,  
characterized in that

the probe (1) has a ferromagnetic signal amplification  
(22).

8. The eddy current probe as claimed in claim 1,  
characterized in that

the probe (1) is adaptable to radii of curvature of up to  
50 mm.

9. The eddy current probe as claimed in claim 1,  
characterized in that

the backing (22) is a gas-filled material.

10. The eddy current probe as claimed in claim 1,  
characterized in that

the exciter coil (4) and the signal coil (7) are arranged  
in one plane.

11. The eddy current probe as claimed in claim 1,  
characterized in that

the entire region to be examined is covered by the probe  
(12).